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was not reached from October to April inclusive. The daily range is small, as was to be expected, on account of high latitude, position on the seacoast, and great cloudiness of the warmer weather. The greatest difference of the warmest and coldest hour is 6°.4, in April. The small amount of cloud in winter, and the large amount in the warmer weather, are to be noted. The latter is in great measure due to fog or low clouds. The mean temperature at a depth of 0.4 metre in the ground was much higher in the yearly mean than the mean temperature of the air (−11°.6 against −17°.4). It is interesting to see, thus, how even the small covering of snow mentioned by the observers acts in protecting the ground from the frosts. The relative humidity is great in all months, as was to be expected.

	Extremes of temperature.		Mean pressure. ¹	Amount of cloud.	Pre-vailing wind. ²	Mean velocity of wind. ³
	Min.	Max.				
September.....	−12.3	11.0	753.9	9.0	W 26	6.7
October.....	−29.6	−2.5	759.3	7.2	E 25	6.5
November.....	−36.3	−18.3	758.9	6.0	S 23	5.6
December.....	−49.2	−19.4	761.7	5.1	S 23	5.3
January.....	−47.8	−25.9	761.5	3.7	S 28	4.3
February.....	−53.2	−27.1	764.9	2.6	S 30	5.0
March.....	−41.6	−18.6	763.9	3.3	S E 24	4.7
April.....	−32.8	−10.3	765.8	5.2	E 33	5.6
May.....	−24.2	3.3	755.6	8.6	E 29	6.9
June.....	−12.6	12.5	752.3	8.4	E 32	6.8
July.....	−0.2	12.1	757.8	7.6	E 37	8.9
August.....	−1.2	12.8	756.4	8.5	E 30	7.0
Year.....	−53.2	12.8	759.3	6.3	6.1

¹ Barometer 4.9 metres above level of river.

² The figures show the percentage of the wind to the total number of observations (eight directions).

³ In metres per second.

A preliminary map, based on the surveys of the expedition, accompanies the report, and gives new and important data, including the northern limit of forest. Generally it reaches to 71° north, but on both banks of the Lena to nearly 72°. The protection afforded by the high ground on the banks of the river is evidently the reason of this; the cold winds of summer, and small amount of sunshine, being the principal enemies of vegetation here, not the winter frosts, which are much more severe in the valleys of the interior, where forest-trees grow well.

At the Moscow university there was, a short time ago, a celebration of the thirty-five years' professorship of N. J. Daydyow, one of the most distinguished mathematicians of Russia, his principal works being in theoretical mechanics and the theory of probabilities. Among scientific work going on there, we may mention that published recently by Professor Joukowsky, on the

movements of a solid with compartments filled by incompressible liquids.

The Russian universities give their degrees of 'magister' and 'doctor' after a public disputation sustained by the recipient. The latter was recently conferred on I. S. Nasimow, for his dissertation 'On the application of the theory of elliptic functions to the theory of numbers,'—a distinguished work, say the specialists.

At St. Petersburg there was in October a brilliant 'disputation,' after which the doctor degree of chemistry was conferred on Professor Koisowalow, for his work on 'Contact phenomena.' The hero of the day was Professor Mendelejef, one of the official opponents, who made a brilliant speech of more than an hour. On Nov. 15 the degree of magister of astronomy was conferred on Prince Dolgorowsky for his work on 'The secular irregularities in the movement of the moon,' of which our astronomers have a high opinion.

O. E.

St. Petersburg, Nov. 15.

LONDON LETTER.

A DEPLORABLE accident has put an end to the career of one of the most active and useful scientific workers of our day, and has made a gap in scientific circles which will not readily be filled. On the night between Nov. 9 and 10, Dr. W. B. Carpenter, F.R.S., the eminent physiologist, was taking a hot-air bath to relieve rheumatic pains (from which he had more or less constantly suffered since his visit to America in 1882), when by some means the spirit-lamp was upset, and he was so fearfully burned that he died in four hours, in presence of his wife and his two eldest sons. There is good reason to hope that, after the first few minutes of agony, he did not suffer; his last words being, "I have had a good night, I should like to be left alone." The surgeon stated at the inquest that he "had never known so severe a case of burning, it was literally from head to foot." The funeral took place at Highgate, a hill in a northern suburb of London, on Nov. 13. Among those who assembled at the cemetery, notwithstanding the unfavorable weather, were Professor Huxley, the president, and Dr. Michael Foster, the secretary, of the Royal society; Mr. Percy Sladen, secretary of the Linnean society; Professor Judd, representing the Geological society; Professor Stewart, the president of the Microscopic society; Prof. H. N. Moseley of Oxford, representing the officers of the Challenger expedition; Prof. W. H. Flower, of the British museum; Mr. Lecky; Rev. Page Roberts, a well-known representative of the 'Broad church'; Sir Joseph Hooker

of Kew; the Rev. Dr. James Martineau; Dr. Drummond; Professor Upton; Mr. R. Potter; Mr. Talford Ely, secretary of University college; and others well known in scientific circles. In the mortuary chapel, as well as at the grave, the service was read by the Rev. Dr. Sadler, whose ministrations at the Hampstead Unitarian chapel Dr. Carpenter had attended more than forty years. A large number of strangers were present.

During the week frequent notices of Dr. Carpenter's life and work have appeared in the English journals. Born at Exeter in October, 1813, he was the son of Lant Carpenter, a Unitarian minister, and brother of Philip Carpenter, who died at Montreal in 1877, and of Mary Carpenter, the philanthropist, who died at Bristol in the same year. Though probably best known to the world as a biologist, by his books on physiology and on the microscope, his mind was preeminently many-sided. As much a man of letters as a man of science, there are proofs enough that, if he were the deftest of compilers, he was also the keenest of 'researchers.' The philosophical character of his mind led him to bestow much thought on higher speculations which might appear insufficiently supported for scientific use; but on these subjects he cherished especially the maxims of Schiller, that the scientific man loves truth better than his system. His services to the cause of scientific education were of the greatest value. For many years one of the first of living teachers, he applied his great knowledge and power of organization to the elaboration of the scheme of degrees in science in the University of London, of which he was registrar for twenty-two years. To the last he remained a member of its senate, and exercised a powerful and most beneficial influence on its deliberations. He leaves to his five sons the heritage of a stainless life, and of a name which, in every land where science is cultivated, will never be mentioned otherwise than with respect.

The balloting list of the officers and council of the Royal society has just been issued, and contains the following nominations: president, Prof. G. G. Stokes; treasurer, John Evans; secretaries, Prof. Michael Foster and the Lord Rayleigh; foreign secretary, Prof. A. W. Williamson; other members of council, R. B. Clifton, J. Dewar, W. H. Flower, A. Geikie, Sir J. D. Hooker, T. H. Huxley, Admiral Sir A. C. Key, J. N. Lockyer, H. N. Moseley, B. Price, C. Pritchard, W. J. Russell, J. S. B. Sanderson, A. Schuster, Lieut.-Gen. R. Strachey, and Gen. J. T. Walker. It will be seen, therefore, that it is proposed to elect as president Professor Stokes, who for many years has been one of the secretaries, and to put in the post

thus vacated Lord Rayleigh, who has recently resigned his chair of physics at Cambridge. According to the statutes, of the twenty-one names proposed on the balloting list, eleven must be those of members of the existing council, and ten must be those of fellows not members of that council. The annual meeting is always held on Nov. 30.

November is usually the month of greatest fog in London, and the present year has seen no exception. Of the density of a London fog, few Americans have any idea, except, perhaps, such as live in Pittsburgh, the only place where the present writer, who has travelled much in the United States and Canada, has seen any thing approaching to the smoke-cloud which hangs over our English towns. An entire absence of wind, an atmosphere almost super-saturated with moisture, and the smoke from innumerable household chimneys where bituminous coal is burnt, are the three concurrent causes of town-fog. It was calculated a year or two ago, by Professor Percy and Prof. Chandler Roberts (chemist to the metallurgist of the mint), that the amount of solid unburnt fuel which hung in a pall over London (the population of which is, roughly, 4,000,000) amounted to no less than fifty tons. As the late Sir William Siemens pointed out, the true remedy for this state of things is the increased use of gas for fuel.

The various societies are now on the point of commencing their winter meetings. The programme for the next or 132d session of the Society of arts has just been issued. The chairman of its council, Sir F. Abel, will deliver the opening address on Nov. 18, and the following titles of papers to be read give a fair idea of the scope of the society's operations: Apparatus for the automatic extinction of fires; Load-lines of ships; Technical art teaching; Treatment of sewage; Calculating machines; Domestic electric lighting. There are three sections: 1°. Foreign and colonial; 2°. Applied chemistry and physics; 3°. Indian, — each of which holds a monthly meeting. Six courses of lectures under the Cantor bequest will also be given.

The Institute of chemistry held its anniversary meeting on Nov. 6, the eighth since its incorporation, but the first since it has obtained a royal charter. The aim of the institute is to raise the standard of knowledge possessed by professional chemists by the examination of candidates for the associateship (as a preliminary to fellowship) of the institute, and also to raise the dignity of the profession in the public estimation. The president is Professor Odling, F.R.S., of the University of Oxford.

W.

London, Nov. 14.